



TOWN OF NEW TECUMSETH

WASTEWATER QUALITY MANAGEMENT SYSTEM

OPERATIONAL PLAN

Alliston Wastewater Treatment and Collection
Brendan Holly (Regional) Wastewater Treatment and Collection
Tottenham Wastewater Treatment and Collection

Version Number – 04

Revised – June 22, 2023

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ELEMENT 1 – QUALITY MANAGEMENT SYSTEM

A Quality Management System (QMS) can be defined as a set of policies, processes and procedures required for planning and execution in the core business area of an organization. A QMS integrates the various internal processes within the organization and intends to provide a process approach for day to day operations and project execution. A Quality Management System, enables an organization to identify, measure, control, and improve various core business processes that will ultimately lead to improved business performance.

The use of Quality Management Systems by modern industry has steadily increased over the last 30 years, since the development of the first ISO standard in 1986. Whether implemented voluntarily or as a requirement of suppliers to larger manufacturers, Quality Management has repeatedly proven beneficial in terms of accountability, quality control, efficiency, and productivity.

The Town of New Tecumseth Wastewater Quality Management System (WW-QMS) is documented in this Operational Plan as part of our efforts to ensure that a reliable treatment and collection system is provided to all customers served by the Town of New Tecumseth Wastewater Business Unit. The development and continual improvement of the plan will help ensure that all regulatory requirements are met and that consumers can be confident that the Wastewater Treatment System does not impact the natural environment in which they live.

This plan was developed to meet or exceed the Quality Management Standard, developed by the Ministry of Environment, Conservation and Parks, and is applied to the Town of New Tecumseth Wastewater System.

ELEMENT 2 – QUALITY MANAGEMENT SYSTEM POLICY

The Municipality of the Town of New Tecumseth owns, maintains and operates the New Tecumseth Wastewater Collection and Treatment Systems. The Town of New Tecumseth is committed to:

- Complying with all applicable legislative and regulatory requirements to collect and treat wastewater
- Maintaining and continually improving of the Wastewater Quality Management System
- Protecting the natural environment through the use of affective wastewater treatment processes

The Municipality of the Town of New Tecumseth

March 13, 2017

ELEMENT 3 – COMMITMENT AND ENDORSEMENT

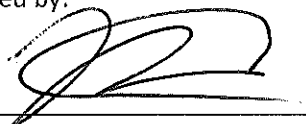
The system owner, The Corporation of the Town of New Tecumseth, support the implementation, maintenance and continual improvement of the Wastewater Quality Management System for the Town of New Tecumseth Wastewater Systems, as documented in this Operational Plan.

Top Management’s commitment to an effective QMS is evidenced by:

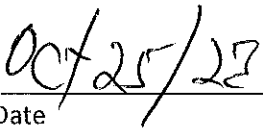
- a) Ensuring that a QMS is in place that meets the requirements of the WWQMS
- b) Ensuring that the Operating Authority is aware of all applicable legislative and regulatory requirements
- c) Communicating the QMS according to procedures
- d) Determining, obtaining, or providing the resources needed to maintain and continually improve QMS

Prior to endorsement of the QMS policy and operations manual, Mayor and council will have completed Standard of Care Training. Endorsement by the Owner and Top Management acknowledges the need for and supports the provision of sufficient resources to maintain and continually improve the WW-QMS.


Endorsed by:



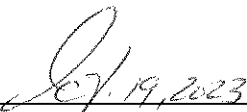
Richard Norcross
Mayor




Date



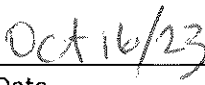
Blaine Parkin
Chief Administrative Office




Date



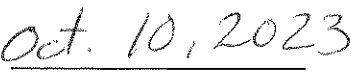
Bruce Hoppe
General Manager, Infrastructure & Development



Date



Chad Horan
Director of Public Works



Date

ELEMENT 4 – QUALITY MANAGEMENT SYSTEM REPRESENTATIVES

The QMS Coordinator will be the WW-QMS representative. In their absence, the Compliance Coordinator in conjunction with the Manager of Water and Wastewater will carry out the WW-QMS representative's responsibilities.

Following are the responsibilities of the WW-QMS representative:

- Provides all staff with necessary technical and administrative consultation related to WW-QMS document preparation and implementation.
- Ensures that processes and procedures needed for the WW-QMS are established and maintained
- Annual report WW-QMS results to Senior level of Management as well as any need for improvement
- Implements and oversees the WW-QMS document and record control procedure
- Reviews and approves WW-QMS documentation before the management review and approval of all documents
- Coordinates and acts as liaison for internal and external audits
- Promotes the awareness of the WW-QMS throughout the Wastewater Business Unit of the Public Works Department and reports WW-QMS results to Wastewater staff
- Performs staff and supplier WW-QMS communication and training
- Ensures that personnel are aware of all applicable legislative and regulatory requirements that pertain to their duties for the Town of New Tecumseth Wastewater Systems
- Ensures the current version of all documents required by the WW-QMS are in use at all times and updates published

ELEMENT 5 – DOCUMENTS AND RECORDS CONTROL

A procedure is in place for Document and Record Control. that describes how documents and are kept current, and how documents and records are kept legible and identifiable, retrieved, stored, protected, retained, and disposed of.

The Town of New Tecumseth controls all required QMS documents through the web-based application, which:

- maintains electronically controlled documents
- permits read-only access
- maintains an archive of documents

Documents are kept current through an annual review process led by the QMS Representative. All personnel can access and request changes to documents. Once the document is printed, the document is considered uncontrolled and not subject to revision.

This procedure describes how documents and records are controlled and is located in Appendix A.

ELEMENT 6 – WASTEWATER SYSTEM PROCESS DESCRIPTION

Town of New Tecumseth owns and operates three wastewater treatment system and one collection system. The collection system consists of 157 Km sanitary pipe.

ALLISTON WASTEWATER TREATMENT SYSTEM

The Alliston Wastewater Treatment Plant is owned and operated by the Corporation of the Town of New Tecumseth. The Collection system is comprised of residential, industrial, commercial, and institutional. An overview of the system located in Appendix B.

WASTEWATER OBJECTIVE PARAMETER

The following table is a summary of the water quality parameters defined by the facilities Environment Certificate of Approval established by the Ministry of Environment Conservation and Parks (MECP). Treatment processes are continually monitored to achieve the following effluent limits.

Effluent Parameters	5,681 m ³ /day	
	Objectives	Limits
cBOD	10 mg/L	15 mg/L
Suspended Solids	10 mg/L	15 mg/L
Total Phosphorous	0.3 mg/L	0.5 mg/L
Ammonia	April 1 – Nov. 30	0.8 mg/L
	Dec. 1 – March 31	2.0 mg/L
E.Coli	80 cfu/100mL	80 cfu/100mL

WASTEWATER TREATMENT DESCRIPTION

The Alliston Wastewater Treatment Plant utilizes an extended aeration process that includes secondary and tertiary treatment. Wastewater comes into the plant by gravity to the headworks building and flows through a bar screen before traveling through a grit removal system. The grit falls into a hazardous waste storage bin and transported to the landfill. Once the grit is removed the wastewater flows through a splitter chamber to divert flows into the secondary treatment. Secondary treatment consists of two separate treatment trains comprised of aeration tanks that are equipped with fine bubble air diffuser system and clarifiers to settle out the solids. The solids, known as return activated sludge (RAS), is pumped back to the aeration tanks to be reused in the treatment process again. The clarified wastewater, known as effluent, moves to the tertiary treatment to achieve effluent limits set out in the Certificate of Approval. Tertiary treatment uses a dual media filter to remove the fine particles before passing through an open channel UV disinfection system. The final effluent is discharged into the receiving water body, Boyne River.

Excess activated sludge, known as waste activated sludge (WAS), is pumped to aerobic digesters for storage that are equipped with a course bubble diffuser system. WAS is stored in the aerobic digester before being transferred to the Brendan Holly (Regional) Wastewater Treatment Plant's biosolid tanks for disposal.

WASTEWATER COLLECTION SYSTEM

The Alliston Wastewater Treatment Plant receives wastewater collected from the north end of Alliston consisting of both gravity and pressurized sanitary pipes. The collection area is comprised of four wastewater pumping stations: Oak Swage Pumping Stations (SPS), Fletcher SPS, J.W. Taylor SPS, and Maple Lane SPS. Church Street SPS has two forcemains one leading to the Alliston WWTP and another Brendan Holly (Regional) WWTP. Church St. Sewage Pumping Stations directs wastewater primarily to the Brendan Holly (Regional) WWTP with a secondary forcemain to the Alliston WWTP as a backup. The Alliston WWTP receives all the wastewater through a gravity feed system.

BRENDAN HOLLY (REGIONAL) WASTEWATER TREATMENT SYSTEM

The Brendan Holly (Regional) Wastewater Treatment Plant is owned and operated by the Corporation of the Town of New Tecumseth. The Collection system is comprised of residential, industrial, commercial and institutional. An overview of the system is located in Appendix C.

WASTEWATER OBJECTIVE PARAMETER

The following table is a summary of the water quality parameters defined by the facilities Environment Certificate of Approval established by the Ministry of Environment, Conservation and Parks (MECP). Treatment processes are continually monitored to achieve the following effluent limits.

Effluent Parameters	7,595 m ³ /day		11,400 m ³ /day	
	Objectives	Limits	Objectives	Limits
cBOD	10 mg/L	15 mg/L	6.7 mg/L	10 mg/L
Suspended Solids	10 mg/L	15 mg/L	6.7 mg/L	10 mg/L
Total Phosphorous	0.10 mg/L	0.15 mg/L	0.07 mg/L	0.10 mg/L
Ammonia	Dec 1 – April 30	0.35 mg/L	0.5 mg/L	0.35 mg/L
	May 1 – Nov 30	3.0 mg/L	3.3 mg/L	3.0 mg/L
E.Coli	100 cfu/100mL	200 cfu/100mL	100 cfu/100mL	200 cfu/100mL

WASTEWATER TREATMENT DESCRIPTION

The Brendan Holly (Regional) Wastewater Treatment Plant utilizes an extended aeration process that includes secondary and tertiary treatment. Wastewater flows through several wastewater pumping stations within the Town of Alliston and Beeton and are brought to the headworks of the Brendan Holly (Regional) Wastewater Treatment Plant. The Influent flows through 6mm fine screen strainer that are capable of handling peak flows of 30,000m³/day. After the strainer, the wastewater travels to the grit removal system. The grit removal system at the Brendan Holly (Regional) WWTP consists of vortex grit chamber which utilizes centrifugal force and gravity to separate the grit from the wastewater flow. Grit moves through a grit dewatering screw classifier that separates the grit from the grit/water mixture. The grit falls into a hazardous waste storage bin and transported to the landfill. The wastewater collected from the dewatering process moves to the splitter chamber where it is mixed with RAS before being returned to the aeration tanks. Wastewater moves into the secondary treatment and is divided into the two treatment trains comprised of aeration tanks that are equipped with fine bubble air diffuser system and clarifiers to settle out the solids. The RAS is pumped back to the aeration tanks to be reused in the treatment process again. The clarified water moves to the tertiary treatment where an ACTIFLO process is used to achieve effluent limits set out in the Certificate of Approval. ACTIFLO uses a coagulant, in the form of Alum, as well as polymer, is added and mixed. Silica Sand is added as a binding agent to assist the fine particles to settle. After the water leaves the ACTIFLO it flows through the DynaSand Filters for further treatment to enhance the quality of the effluent before entering an open channel UV disinfection system. The final effluent travels into the post aeration tank to maintain dissolved oxygen concentration before discharging into the receiving water body, Nottawasaga River.

Waste activated sludge is pumped to the aerobic digesters for storage that are equipped with a coarse bubble diffuser system. WAS is pumped to the sludge thickening tank where decant pumps bring the supernate to the aeration tanks. Waste activated sludge is then transferred to the biosolid tanks, where it is stored along with the WAS from the Alliston WWTP. Biosolids are loaded onto tanker trucks to be spread on agricultural land.

The Brendan Holly (Regional) Wastewater Treatment Plant receives and processing septage from approved haulers. The septage is pumped from the truck and processed through a rock trap assembly to remove all non-organic materials before proceeding to a grinder. The septage is then stored in two holding tanks that equalize the septage before pumping to the treatment process at a controlled rate. The equalization tanks prevent the treatment process from being over loaded.

WASTEWATER COLLECTION SYSTEM

The Brendan Holly (Regional) Wastewater Treatment Plant collects wastewater from south end of Alliston and Beeton consisting of both gravity and pressurized sanitary pipes. The collection area is comprised of five wastewater pumping stations: Church Street SPS, Lilly Street SPS, Industrial Parkway SPS, Lorne Thomas SPS and Cauthers SPS. The Church Street Swage Pumping Stations has two forcemains one leading to the Alliston WWTP and another to the Brendan Holly (Regional) WWTP. Church St. SPS directs wastewater primarily to the Brendan Holly (Regional) WWTP with a small predetermined amount of wastewater directed to the Alliston WWTP as part of an odour control program within the collection system.

TOTTENHAM WASTEWATER TREATMENT SYSTEM

The Tottenham Wastewater Collection and Treatment System is owned and operated by the Corporation of the Town of New Tecumseth. The Collection system is comprised of residential, industrial, commercial, and institutional. An overview of the system located in Appendix D.

WASTEWATER OBJECTIVE PARAMETER

The following table is a summary of the water quality parameters defined by the facilities Environment Certificate of Approval established by the Ministry of Environment, Conservation and Parks (MECP). Treatment processes are continually monitored to achieve the following effluent limits

Effluent Parameters	4,082 m ³ /day		
	Objectives	Limits	
cBOD	5 mg/L	6 mg/L	
Suspended Solids	10 mg/L	15 mg/L	
Total Phosphorous	0.07mg/L	0.10mg/L	
Ammonia	May – September	0.35 mg/L	0.5 mg/L
	April and October	1.0 mg/L	1.2 mg/L
	November – March	3.0 mg/L	3.3 mg/L
E.Coli	50 cfu/100mL	80 cfu/100mL	

WASTEWATER TREATMENT DESCRIPTION

The Tottenham Wastewater Treatment Plant utilizes an extended aeration process that includes secondary and tertiary treatment. Wastewater comes into the plant at the headworks building where it flows through 6mm fine screens equipped with screen washer/compactors and a vortex grit separator which utilizes centrifugal force and gravity to separate the grit from the wastewater. The grit falls into a hazardous waste storage bin and transported to the landfill. Once the grit is removed the water flows into the secondary treatment consisting of two treatment trains comprised of aeration tanks that are equipped with fine bubble air diffusers system and clarifiers to settle out the solids. The RAS is pumped back to the aeration tanks to be reused in the treatment process again. The clarified water moves to tertiary treatment where an ACTIFLO process is used to achieve effluent limits set out in the Certificate of Approval. ACTIFLO uses a coagulant, in the form of Alum, as well as polymer, is added and mixed. Silica Sand is added as a binding agent to assist the fine particles to settle. After the water leaves the ACTIFLO it flows through a shallow-bed sand media filter to enhance the quality of the effluent before entering an open channel UV disinfection system. The final effluent is discharged into the receiving water body, Beeton Creek.

Waste activated sludge is pumped to the aerobic digester for storage that are equipped with a coarse bubble diffuser system and decant pumps to bring the supernate to the aeration tanks. Waste activated sludge from the aerobic digester is transferred to the sludge storage lagoon, where it can be loaded onto tanker trucks to be spread on agricultural land. The sludge storage lagoon is equipped with decant pumps so the supernate can be brought back to the headworks of the plant

During high flow volumes, such as a storm event or snow melt, water can be diverted to the effluent storage lagoons and later pumped back to the headworks of the plant for treatment. Effluent storage lagoon 2 is gravity fed into lagoon 3, a valve can be opened to have lagoon 2 water flow into lagoon 3. Contents of lagoon 2 & 3 can be independently pumped back to the headworks utilizing a common forcemain.

WASTEWATER COLLECTION SYSTEM

The Tottenham Wastewater Treatment Plant collects wastewater from the Village of Tottenham consisting of both gravity and pressurized sanitary pipes. The collection area is comprised of four wastewater pumping stations; Nolan Road SPS, Mill St SPS, Pierce Place SPS and Industrial Road SPS.

ELEMENT 7 – RISK ASSESSMENT

The Town of New Tecumseth established, implemented and maintains a Risk Assessment Procedure (QMS Procedure 03) to:

- Identifies potential hazardous events and associated hazards,
- Assesses the risks associated with the occurrence of hazardous events,
- Ranks the hazardous events according to their level of risk,
- Identifies mitigating measures,
- Identifies a method to verify currency of information,
- Ensures a risk assessment is conducted at least once every three years, and
- Considers the reliability and redundancy of equipment.

Hazards and Hazardous Events were identified and documented in the Risk Assessment Outcomes Table (Form 07-01). Each hazard is assessed with consideration of Likelihood, Severity and Detectability in order to determine its final Risk Rating. From the Risk Rating, it can be determined where Critical Control Points (CCP) are and what contingency plans are needed to mitigate the hazard.

ELEMENT 8 – RISK ASSESSMENT OUTCOMES

Risk assessment outcomes include identification of hazardous events, associated risk scoring, mitigating measures, and response procedures. The Risk Assessment Outcomes for the Alliston, Brendan Holly (Regional) and Tottenham Wastewater Treatment Plants and collection systems can be found in Appendix E - G respectively. Control Limits have been established for the Critical Control Points identified in the Risk Assessment Outcomes Table and are within the regulatory limits set by the Ministry of Environment, Conservation and Parks (MECP). The Control Limits act as a warning that adjustments to the treatment process may be required to prevent an adverse condition incident.

ELEMENT 9 – ORGANIZATIONAL STRUCTURE, ROLES, RESPONSIBILITIES AND AUTHORITIES

Town of New Tecumseth documents a procedure ensuring that the Owner, Operating Authority and Top Management are defined, the organizational structure of the Operating Authority is described and the roles, responsibilities and authorities of Top Management and key positions within the Operating Authority are identified.

9.1. ORGANIZATIONAL STRUCTURE

Organizational Structure of the Wastewater Department are shown as following:



9.2 .OPERATIONAL ROLES, RESPONSIBILITIES AND AUTHORITIES

The operational roles, responsibilities and authorities of individuals who are responsible for the Town's Wastewater Treatment System under the WW-QMS are described in Appendix H.

ELEMENT 10 – COMPETENCIES

The Ministry of the Environment and Climate Change has classified the Town of New Tecumseth's Wastewater Systems as a Class II Treatment and Class II Collection System. The Competency requirement table in Appendix I identifies the competencies required of the Town of New Tecumseth staff whose performance may have direct impact on the Wastewater Systems.

SATISFYING COMPETENCIES

The Town of New Tecumseth may administer certain tests, conduct interviews, and verify references and/or request specific documentation as part of the hiring process in order to verify skills, experience and knowledge. All new employees outlined above must provide evidence of certification and other competency requirements. Job descriptions are managed by Human Resources and may be updated if determined as a requirement by either the employee, Supervisor, and/or Manager.

All new employees will undergo training conducted and documented by appropriate staff, including a review of the Operations Manual and Contingency / Emergency plans for the Wastewater Systems, a review of the WW-QMS Operational Plan, and on-the-job training. There is a probationary period for new or transferred employees and at the end of the probationary period the Supervisor evaluates the employee's competency.

Annual training is provided to ensure that certified operational staff meet or exceed minimum standards for annual training hours and continuing education hours as established in O.Reg. 129/04 to maintain operator certification. In order to meet the ongoing changes to technology, software and the requirements of O.Reg. 129/04, staff will receive training in accordance with the Town's Policy on Continuing Education.

All records of training and certificates are maintained at the Public Works office according to the Document and Record Control procedure as proof that the required training has been successfully completed. Training requirements are determined through an established training matrix, Human Resources training schedules for corporate wide courses, and specific operational needs.. Operators are responsible for completing required training and for renewing their certificates. The Wastewater Supervisor and Compliance Coordinator ensure all certificates are current. All operator certificates are posted at Alliston, Brendan Holly (Regional) and Tottenham Wastewater Treatment Plants.

ELEMENT 11 – PERSONNEL COVERAGE

A procedure for Personal Coverage (QMS Procedure 04) has been developed for the Town of New Tecumseth Wastewater Systems. The procedure outlines the normal working hours for the operation staff as well as after hours and holiday coverage.

11.1 On-site Coverage/ Regular hours

- The Waste Water Department is staffed Monday through Friday, 7:00 am to 3:30 pm.
- The Supervisor and Senior Operator Water oversees the day-to-day operation of the Water Supply Systems.
- One or more licensed operator will be designated as OIC. The OIC will look after the daily operational processes. In the event that an OIC is absent, the Wastewater Supervisor will assign another Operator to assume their duties.
- The Wastewater Supervisor is the primary Overall Responsible Operator (ORO) and is responsible for day-to-day operation of the entire Wastewater treatment and collection System. The Wastewater Supervisor designates the OIC. The Senior Operators for Wastewater are the alternate ORO. If either of the Senior Operators are not available to be alternate ORO, an operator who holds a valid certificate that is applicable to that type of subsystem may act as ORO.

11.2 After-hours/Weekend/Stat Holiday Coverage

- The On-Call schedule for Wastewater Operators shall cover 7 days a week 24 hours a day. All operators are on a weekly scheduled rotation. The Wastewater Supervisor establishes the On-Call schedule. A copy of the current approved On-Call schedule list is maintained digitally by the Administrative Clerks and filed in accordance with the Document and Record Control procedure; distributed internally among Operators and posted at appropriate locations by the Supervisor. An On-Call Procedure is located in the Town's Standard Operating Procedure.
- At all times, the Wastewater facilities are monitored by the SCADA system. The SCADA system contains Server Software (Win911) that are programmed to contact the On-Call phone in the event of an alarm condition. The On-Call operator is the designated OIC and will respond to, and

investigate, all alarms within approximately 60 minutes. An ORO is available by cell phone within 120 minutes and is able to be on-site within 24 hours if required.

- The Town retains the services of a 24/7 Answering Service Company to respond to the Public complaints and inquiries. During after-hours, the Answering Service will dispatch the appropriate On-Call Operator to respond to the emergency according to the On-Call schedule. During working hours the Answering Service forwards the calls to the Public Works office. The Answering Service provides faxes a record of all the calls received to the Public Works office every day. The faxes information provided includes the name, address and phone number of the person who called and a brief description of the problem or inquiry. Administrative Clerks files all the records of the Answering Service Messages in accordance with the Document and Record Control procedure.

11.3 Strikes and / or Lockouts

Not applicable as the Town staff are not unionized.

11.4 Staff Shortage

- Staff, with suitable licensing, will be utilized from other Business Units to assist with daily tasks and operation of the water facilities.
- Non-compliance activities will be placed on hold until staffing levels have returned to suitable level.
- Major capital projects, that do not affect compliance, will be placed on hold if feasible. Maintenance activities that are determined non-essential will not be completed during staff shortage. Maintenance activities will be carried out on critical assets.
- Utilization of contract services where applicable.

11.5 Emergency Situation

New Emergency Situations sections have been added to the Licensing of Sewage Works Operators regulation (O. Reg. 129/04), under the Ontario Water Resources Act, to set out the following:

New regulatory changes allow to the Town to act quickly to help ensure that wastewater collection and treatment is protected during an emergency. The Town of New Tecumseth may temporarily employ emergency substitute operators, who are knowledgeable, experienced, but non-certified personnel, to operate a drinking water system to help ensure its continuity of operations in specified emergency situations.

ELEMENT 12 – COMMUNICATIONS

A procedure for Communication (QMS Procedure 05) has been developed for the Town of New Tecumseth Wastewater System. The procedure describes how the Town of New Tecumseth communicates the WW-QMS between the Town Council and its employees, suppliers and the public.

ELEMENT 13 – ESSENTIAL SUPPLIES AND SERVICES

This procedure identifies the supplies and services deemed essential to wastewater collection and treatment systems (QMS Procedure 06). The procedure identifies how to ensure the quality of essential supplies and services that can affect the wastewater process.

The products and services listed in Appendix J are deemed to be essential to the wastewater systems. Each of these products or services is available from more than one source that is approved by the Wastewater Business Unit. This list is reviewed annually by the Wastewater Supervisor to ensure that it is current and up to date.

All essential products and services are purchased under the Town's Procurement of Good and Services Policy.

Supplies are verified against the order requisition when received. Proof of product must be provided to the Wastewater Supervisor or designate upon delivery prior to unloading.

ELEMENT 14 – REVIEW AND PROVISION OF INFRASTRUCTURE AND RESOURCES

The Town's annual Infrastructure Review ensures periodic evaluation of the condition and capacity of infrastructure components. The appropriate personnel review the adequacy of the infrastructure needed for the efficient operation and maintenance of its drinking water system and ensure the provision of this infrastructure. The results of the evaluation are used to prioritize future resource allocations.

The Manager of Water & Wastewater, in consultation with the General Manager of Infrastructure and Development, The Director of Engineering, and the Director of Public Works, assists with the preparation and the infrastructure Review report by considering following items:

- Pervious infrastructure review Reports,
- Staff and public suggestions,
- MECP Compliance Inspection Reports,
- Risk Assessment Outcomes Tables,
- Flow data trends,
- Maintenance records to determine priority needs,
- Engineering team Reports

The infrastructure review is included as a section in the Wastewater QMS Annual report to Council. The infrastructure review is revisited and revised if deemed necessary by management during the preparation of the annual budget.

ELEMENT 15 – INFRASTRUCTURE MAINTENANCE, REHABILITATION AND RENEWAL

Once per year, the Manager of Water and Wastewater in conjunction with the Engineering Department will prepare a summary of the infrastructure maintenance, rehabilitation and renewal programs and specifically look at unplanned maintenance work to determine if additional planned maintenance is required. This summary is included as a section of the Infrastructure Review Report and will be communicated to the Council as part of the Wastewater QMS Report.

INFRASTRUCTURE MAINTENANCE

Maintenance activities may significantly impact the efficiency of the treatment and collection process. Pre-planning and a documented systematic approach to addressing maintenance activities, where possible, can minimize this impact.

In order to monitor the effectiveness of the Town's maintenance program, a summarization of the maintenance activities will be reviewed for the year. The Maintenance summary is reviewed at the Element 15 meeting and concerns are identified and discussed with the meeting attendees. The summaries and any comments from the review are documented in the meeting minutes and filed in accordance with the Document and Record Control procedure.

The following key maintenance indicators might be considered while assessing the effectiveness of the Town's maintenance program:

- The cost for supplies and the number of repair hours
- The number of completed work orders or maintenance activities in a given time period.
- The number or percent of overdue planned maintenance activities
- The number and frequency of unplanned maintenance activities

PLANNED MAINTENANCE

Planned Maintenance is defined as any variety of scheduled maintenance, be it preventative or predictive in nature. The Wastewater and Maintenance staff perform planned maintenance on a regular schedule that is reviewed and updated according to needs and priorities. Planned maintenance is scheduled and communicated to staff by issuance of work orders through Computerized Maintenance Management System (CMMS). Completed work orders are reviewed and signed by the appropriate Supervisor or designate.

Scheduled tasks on Machinery and Equipment are typically defined by manufacturer's literature when available and revised (or created) as needed according to operator experience/observations. Other planned maintenance includes but not limited to, bi-annual sewer flushing, wet well cleaning, clarifier cleaning, and UV bulb maintenance.

Maintenance and construction activities are primarily performed by Public Works staff with construction components contracted on an as required basis. Subcontracted work is performed in accordance with the

Town of New Tecumseth policies and procedures. The appropriate Supervisor or designate shall ensure that contracted work is monitored as required.

Once the maintenance work is completed, the appropriate staff (i.e., operational, maintenance or contractor) shall describe the work details on the face of the work order and shall obtain the Supervisor's approval before the work order is returned to the Maintenance Clerk to be filed according to the Document and Record Control Procedure and/or stored in the Computerized Maintenance Management System (CMMS).

UNPLANNED MAINTENANCE

Typical unplanned maintenance includes blocked sewer mains or a break in the sanitary mains. Town staff work to complete the unplanned maintenance and when there are not enough internal resources available then the Wastewater Supervisor or designate contracts this work. A list of acceptable contractors is contained within the Essential Supplies and Services list. A certified operator must conduct or be present during all operational work unless the maintenance is being performed in isolation of the wastewater treatment process.

Unplanned machinery and equipment maintenance tasks result from mechanical or electrical malfunction and/or failure. The Maintenance Supervisor or designate is responsible to ensure all the equipment associated with the wastewater system is appropriately maintained. The Maintenance Supervisor or designate has the authority to contract unplanned maintenance work to a qualified contractor listed in the Essential Supplies and Services Table. All unplanned maintenance work shall be recorded on a work order and forwarded to the Maintenance Supervisor for approval and then sent to the Maintenance Clerk to be filed in accordance with the Document and Record Control procedure and/or stored in the CMMS.

INFRASTRUCTURE REHABILITATION AND RENEWAL

Asset Management compiles an infrastructure rehabilitation and renewal schedule considering all available information such as age, condition, risk, and level of service. Staff suggestions, consumer complaints, and water quality trends are also taken into consideration when determining priority projects. The Public Works Department, Asset Management Business Unit and the Engineering Department review the priority projects in relation to a projected 1 year, 5 year and/or 10-year plans. Assets which have been identified as needing a form of rehabilitation or renewal are included in the Annual Business Planning process (budget) that is utilized to drive the decision make process with the Owner. Detailed estimates are prepared to establish how much funding will be required to complete the recommended projects. The capital requirements are then submitted to Senior Management, Executive Management and the Owner for approval.

ELEMENT 16 SAMPLING, TESTING AND MONITORING

SAMPLING AND TESTING

The Town of New Tecumseth Wastewater Business Unit sampling program is based on the requirements set out in the Environmental Compliance Approval.

Analytical results are acquired from in-house analyses as well as from a selected accredited laboratory. A competent certified operator performs all in house sampling, which includes phosphorus, ammonia and suspended solids testing. In house laboratory data are entered into the In-plant test results log book. In addition to the test conducted by operators, samples are collected and submitted weekly to an accredited laboratory for testing. Test results from the accredited lab are emailed to the Wastewater Supervisor and the Compliance Coordinator for review and filing.

Analytical results are available to members of the public upon request from the Public Works office. Analytical results are summarized and presented to Top Management at the element 20 Management Review meeting.

MONITORING

SCADA

The SCADA system monitors and controls the Wastewater treatment including;

- Wet well levels, pumps, flow meters, analyzers, chemical feed pumps, and system pressure etc. Detailed information can be obtained from the SCADA manual.
- The operator has the capability to adjust processes affecting final effluent water quality based upon the information and data provided by SCADA.
- Any adjustment made to process parameters are recorded in the Daily Log and recorded by SCADA.
- All parameters related to compliance are trended by the SCADA system.
- Currently WIN 911 is used for paging alarms at the following SCADA server locations:
 - Alliston Wastewater Treatment Plant
 - Brendan Holly (Regional) Wastewater Treatment Plant
 - Tottenham Wastewater Treatment Plant

VISUAL

- The operator conducts a visual inspection ('rounds') of the facilities during the weekday. Please refer to the Operational Checks procedures within the Town's Procedures for instruction on the inspection of each facility.
- Results are recorded in the Daily logbooks at each facility.
- In-house laboratory analysis is performed throughout the week at various stages of treatment. Please refer to the Operational Checks procedures with the Town's Procedure for instruction on the laboratory analysis at each facility.
- Equipment and building conditions, if deficiencies, shall be noted in the daily log and reported to the Wastewater Supervisor or designate.

ELEMENT 17 MEASUREMENT & RECORDING EQUIPMENT CALIBRATION & MAINTENANCE

The calibration program is for all water sampling, monitoring and/or testing equipment and devices. A qualified contractor is obtained to calibrate the following list of equipment once a year:

- Flow meters,
- Hach analyzers,
- Gas detectors.

Records of all calibrations are retained at the Public Works office according to the Records and Control Procedure. Contractors hired by the Town to complete equipment calibration, shall provide calibration certificates for the equipment that is being used for calibration. Contractors qualified to perform calibrations are listed on the Essential Supplies and Services list and have received an acknowledgment letter about quality of services. Calibration certificates are stored as per the Document and Record Control procedure.

ELEMENT 18 EMERGENCY MANAGEMENT

Emergency management outlines the emergency preparation process and includes the following:

- Risk Assessment
- Procedures for emergency response
- General observation and the required steps to respond to a major emergency involving the wastewater works
- Emergency Contacts
- Emergency Response Training

The Emergency Management Procedure (QMS Procedure 07) provides conditions at the Town of New Tecumseth Wastewater Systems that are considered to be a potential emergency.

ELEMENT 19 INTERNAL AUDITS

Internal audits are conducted to ensure that the WW-QMS conforms to the requirements of the Town of New Tecumseth Wastewater Operational Plan at least once per calendar year. The internal audit will also use the requirements set out in the Ontario Drinking Water Quality Standard as a guide for Wastewater QMS audits. This standard developed by the Provincial Government was used to create the Town's Wastewater QMS. These requirements include ensuring that the WW-QMS has been effectively implemented and properly maintained. The Town of New Tecumseth has documented a procedure for internal audits (QMS Procedure 08).

ELEMENT 20 MANAGEMENT REVIEW

A Management Review is used to evaluate the continuous suitability, adequacy, and effectiveness of the WW-QMS. A procedure for Management Review (QMS Procedure 09) has been established by the Town of New Tecumseth and is performed on an annual basis. It is recommended that after Management Review and along with the Wastewater Quality Management Report that Council Re-Endorse the Wastewater Operational Plan (QMS Procedure 01).

Management Review participants shall include:

- Director of Public Works
- Manager Water & Wastewater
- Wastewater Supervisor
- Compliance Coordinator
- QMS Coordinator

The Management Review Team may include other personnel at their discretion. The QMS Coordinator, or Alternate, chairs the Management Review meeting and is responsible for sending the meeting invite with the agenda for the meeting.

Management Review Input

The following Management Review agenda must be addressed:

- a. incidents of regulatory non-compliance and response actions,
- b. the effectiveness of the wastewater aspects and impacts process (changes in significant wastewater aspects),
- c. objectives and targets, and status of wastewater Management Programmes, d. internal audit results,
- e. summary of WWQMS non-conformance reports, including Essential Supplies and Services' non-conformances,
- f. results of emergency response testing,
- g. operational performance,
- h. influent and effluent wastewater quality trends,
- i. follow-up on action items from previous management reviews, j. the status of management action items identified between reviews,

- k. changes that could affect the Quality Management System,
- l. internal & external communication,
- m. the resources needed to maintain the Quality Management System,
- n. the results of the infrastructure review,
- o. Operational Plan currency, content and updates, and
- p. staff suggestions.

Management Review Output

Management review outputs will include identification of specific actions items to address deficiencies, personnel responsible for delivering those action items and proposed implementation timelines. During Management Review, Top Management will provide a record of any decisions and actions related to:

- Improvement of the QMS and related procedures
- Improvement of the Operating Authority's ability to implement consistently the QMS
- Human and financial resource needs
- The level of consumer satisfaction
- The level of environment protection

ELEMENT 21 CONTINUAL IMPROVEMENT

The Town of New Tecumseth will establish and maintain a Wastewater Quality Management System by regular reviews, improved and upgraded by management and employees involved in the treatment of municipal wastewater.

The Town will seek continual improvement through best management practices, corrective actions, and preventative actions.

Best management practices (BMPs) include:

- BMPs published by the Ministry of the Environment, Conservation and Parks (MECP).
- Attending the annual WWQMS workshops
- Involvement in Municipal Water / Wastewater Regulatory Committee (MWWRC) meeting and discussions
- Internal Audit
- External Audit
- MECP inspections
- Any other means (i.e., manufacturer recommendations, staff suggestions, etc.)

Corrective Action

Corrective action involves taking measures to eliminate causes of identified nonconformances of the QMS with the requirements of the DWQMS or another undesirable situation.

Preventive Action

Preventive actions are taken to eliminate or prevent the cause of a potential nonconformance.

When appropriate, the Town of New Tecumseth will modify / update adjust processes and procedures (while remaining in compliance with MECP regulations) to improve operations and customer satisfaction (QMS Procedure 10).

HISTORY OF CHANGES

Version Number	Release Date	Details of Changes	By
001	July 3, 2018	Created	PG
002	September 20, 2021		LM
003	May 20, 2022		PG
004	June 22, 2023	<ul style="list-style-type: none"> • Added explanation about BMP, Corrective and preventative actions in Element 21 • Added Management review input, output and Management Review participants explanation to Element 20 • Added information about Emergency management outlines to Element 18 • Added receiving acknowledgment letter by third party to Element 17. • Added Staff/public suggestions and Engineering team reports to list of infrastructure review reports in Element 14. • Added 11.1,11.2,11.3,11.4 and 11.5 sections to Element 11. • Added information about job description and probation period to Element 10. • Added purpose and new flowchart to Element 9. • Added a brief about what the risk assessment table includes in Element 8. • Added risk assessment components Element 7. • Added some explanation about document control and maintain to Element 5. • Added total pipeline • Added four evidence to top management commitments, also updated Mayer information in Element 3. • Added providing standard of care training for council and mayor in Element 3 • Added history of changes table to this document • Switched name of Regional to Brendan Holly (Regional) in this document 	MA

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